



1/20

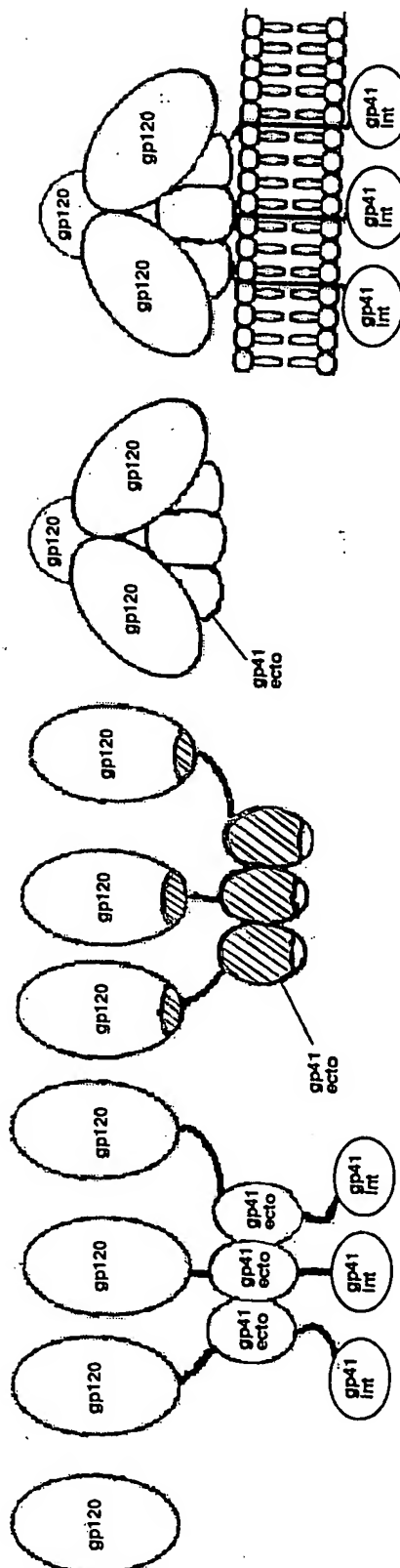


FIGURE 1

BEST AVAILABLE COPY

2/20

FIGURE 2

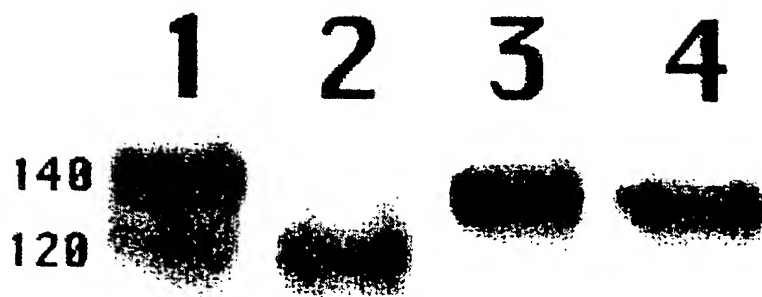
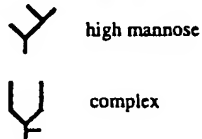
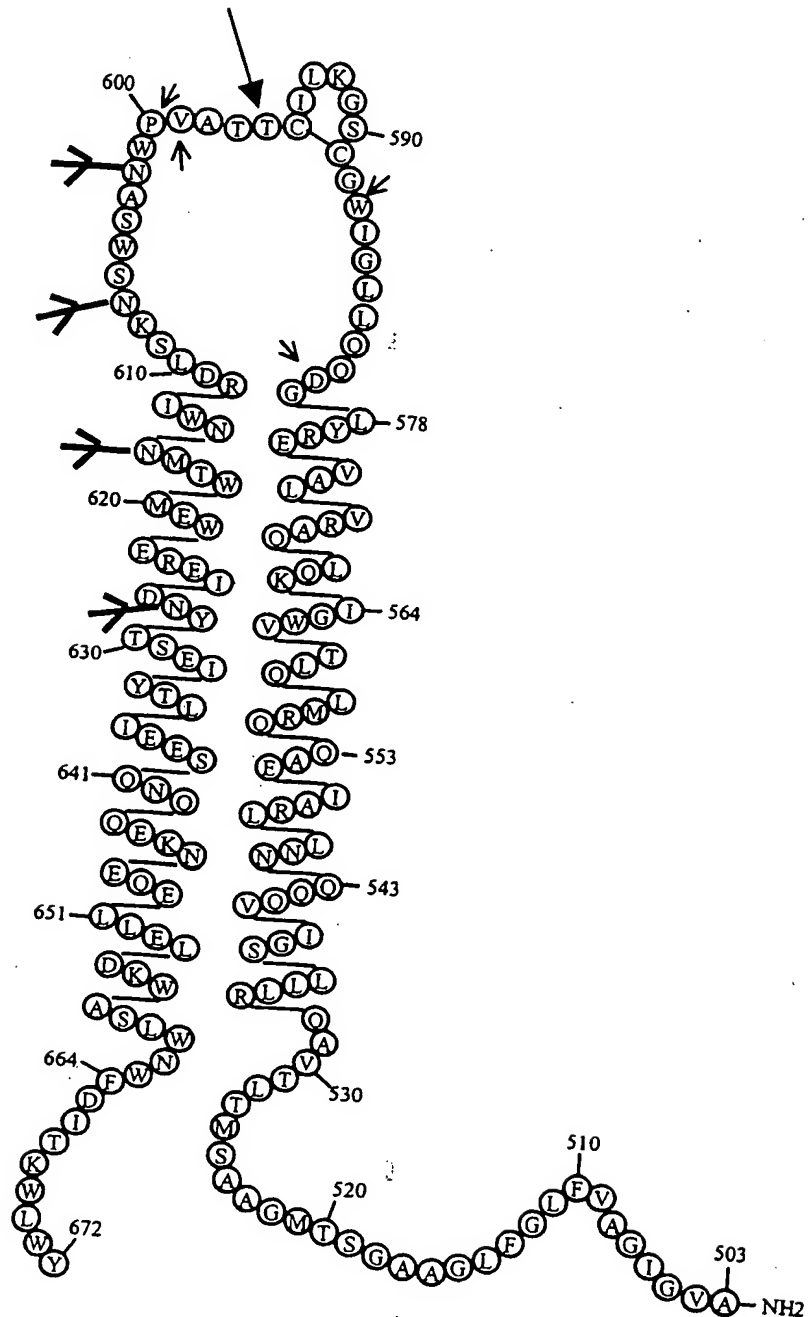


FIGURE 3A



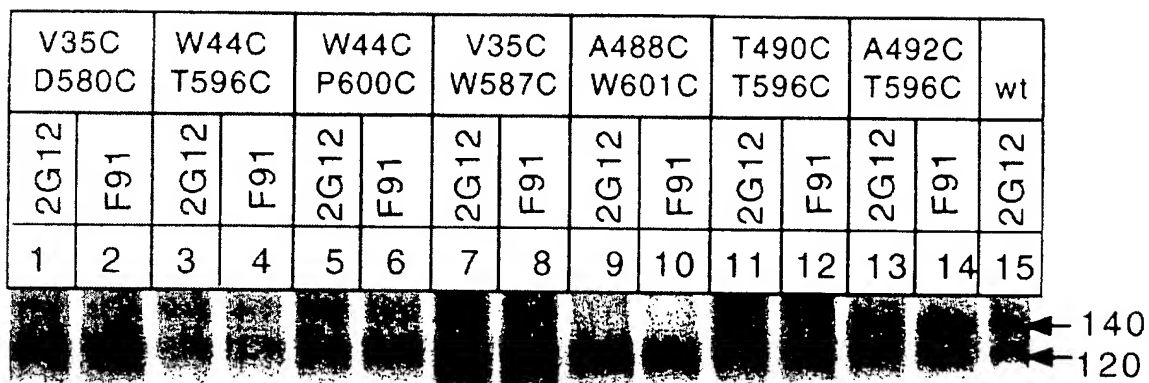
4/20

FIGURE 3B



5/20

FIGURE 4



6/20

FIGURE 5

gp41							gp120	
	D580C	W587C	T596C	V599C	P600C	W601C	C1	
V35C	0.45	0.40	0.35	0.30	0.40	0.30		
Y39C	0.35	0.30	0.60	0.45	0.45	N.D.		
W44C	0.45	0.45	0.65	0.50	0.65	0.45		

gp120							C5	
	D580C	W587C	T596C	V599C	P600C	W601C		
P484C	0.35	0.30	0.45	0	0	0		
G486C	0	0	0.25	0.20	0.30	0		
A488C	0	0	0.05	0	0	0		
P489C	0	0.10	0.30	0.15	0.05	0		
T490C	0	0.15	0.55	0.25	0.25	0.10		
A492C	0.05	0	0.75	0.50	0.10	0.25		

7/20

FIGURE 6A

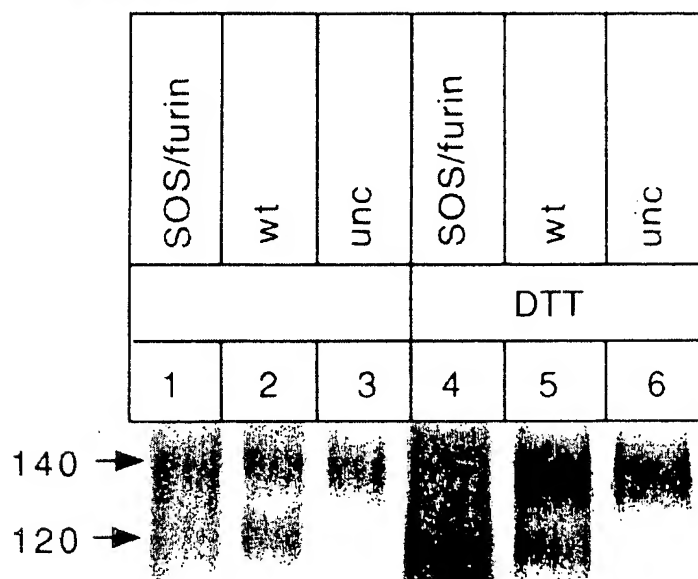


FIGURE 6B

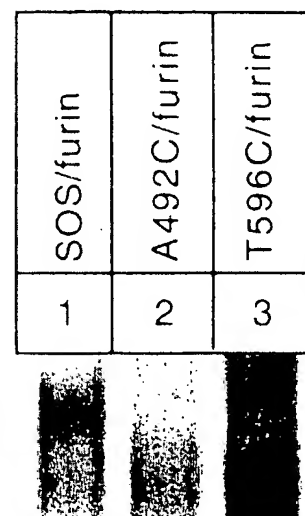
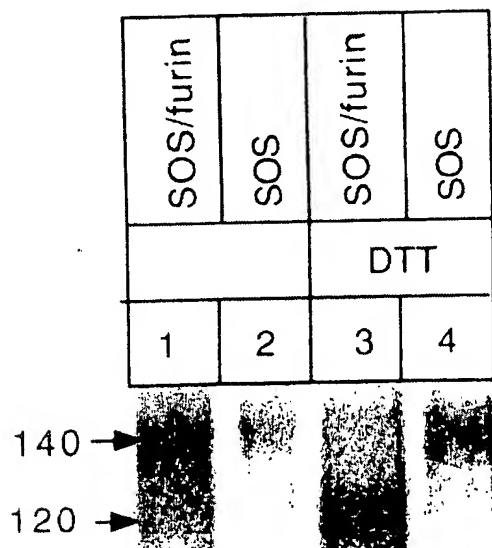
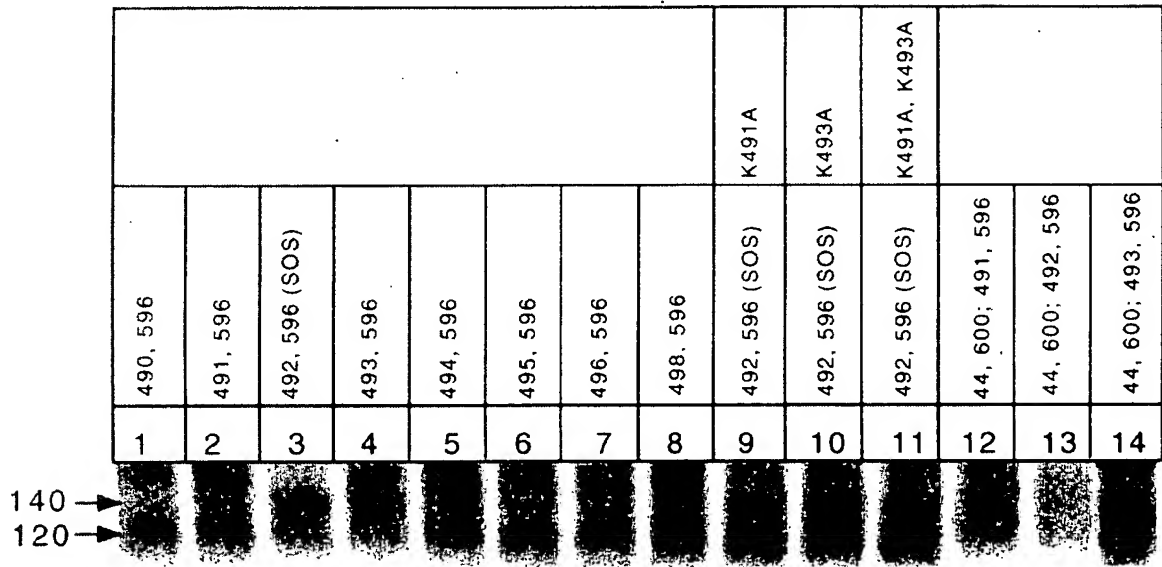


FIGURE 6C



8/20

FIGURE 7



9/20

FIGURE 8A

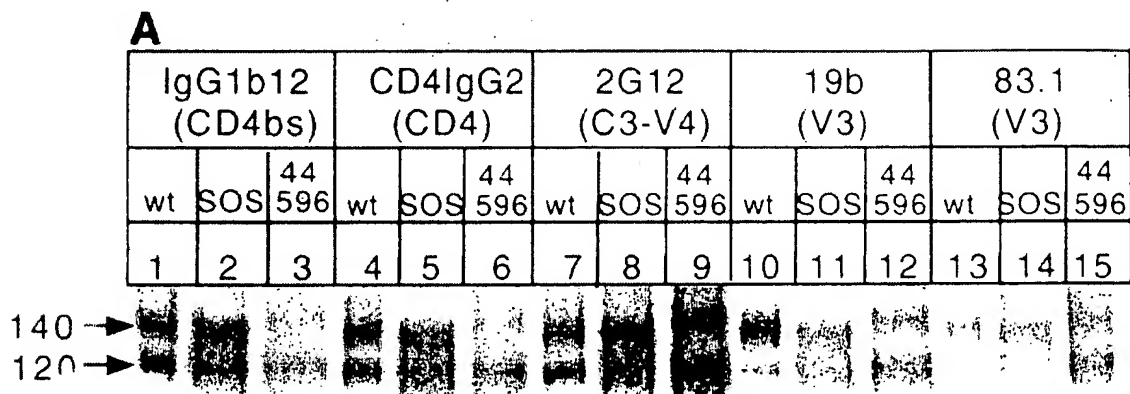


FIGURE 8B

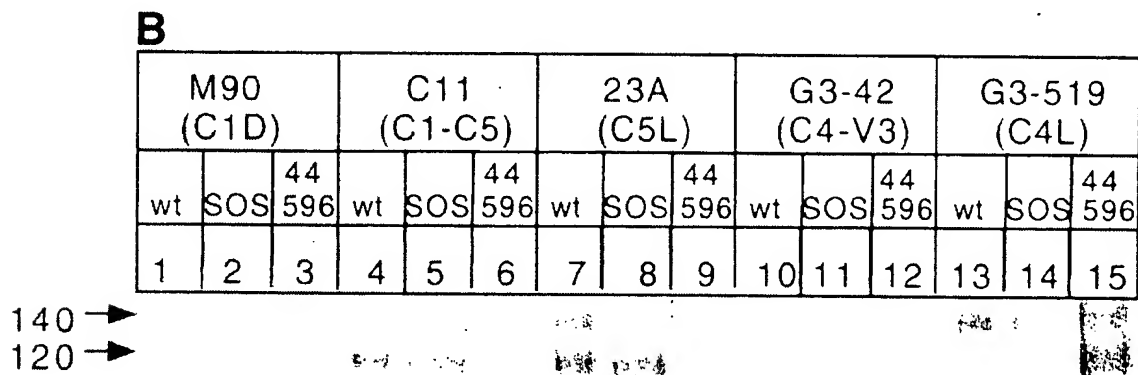
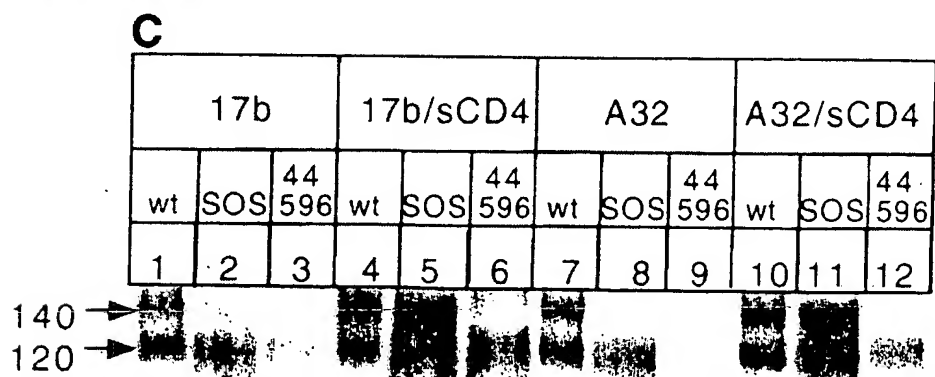


FIGURE 8C



10/20

FIGURE 8D

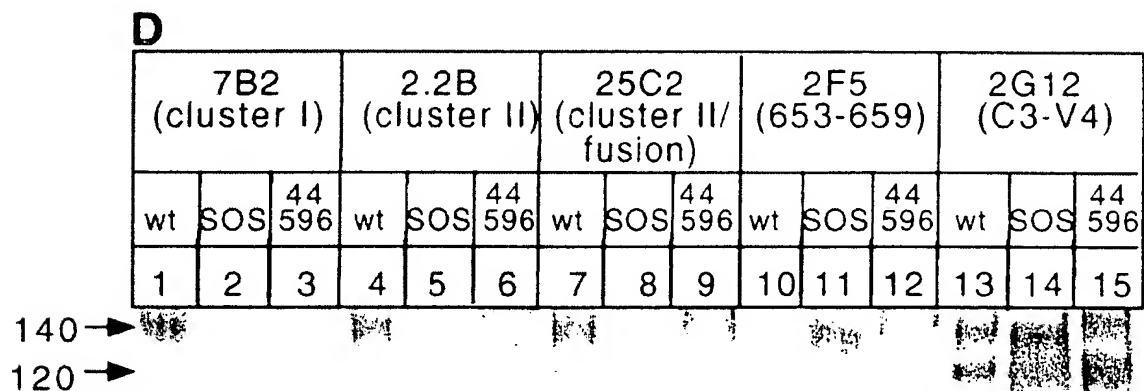
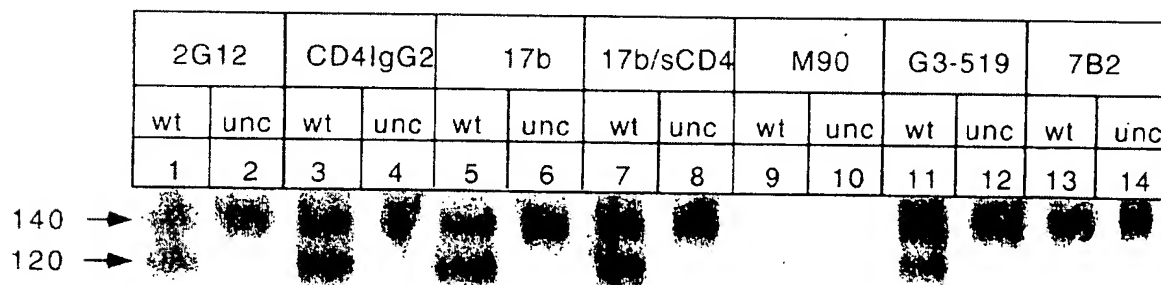


FIGURE 8E



11/20

FIGURE 9A

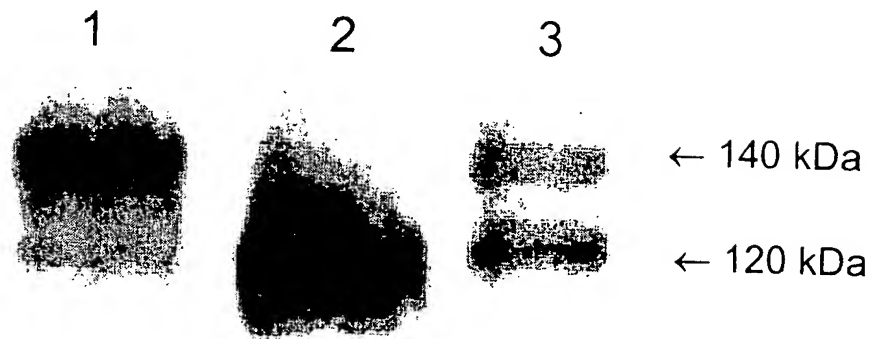


FIGURE 9B

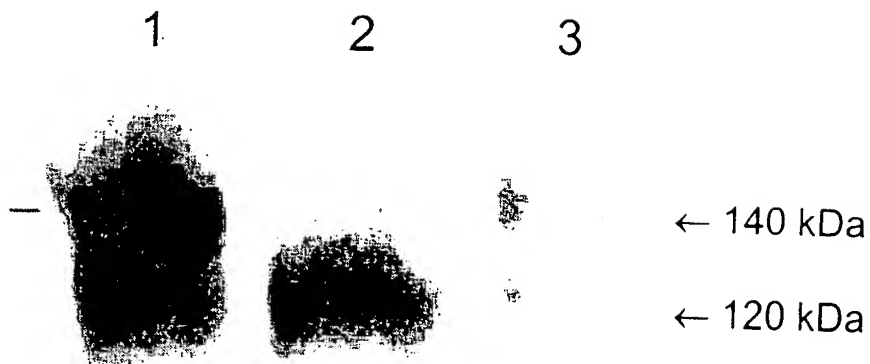
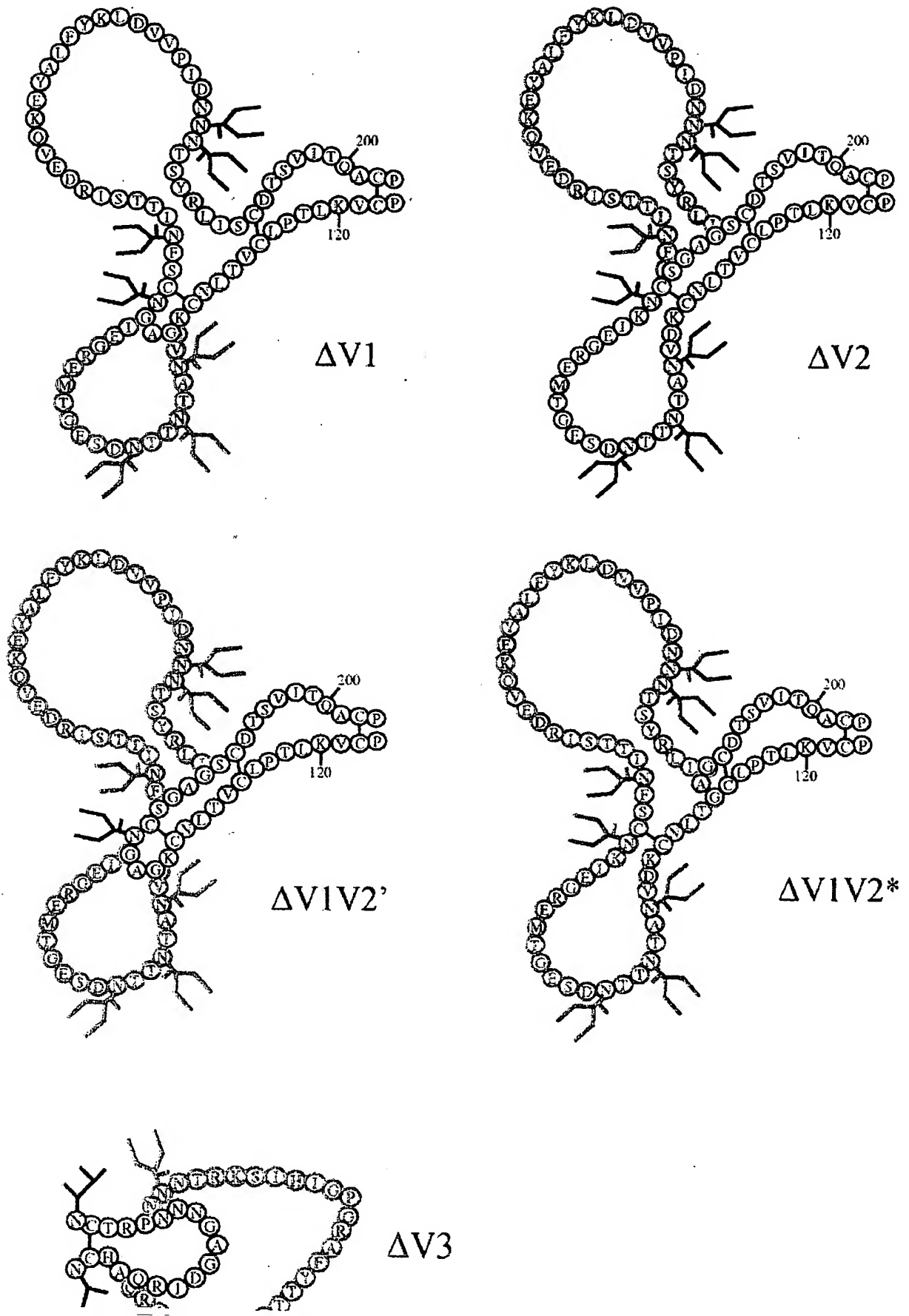


FIGURE 10

12/20



13/20

FIGURE 11A

A

wt ΔV1V2*V3		CC ΔV1V2*V3		wt ΔV1V2*V3 N357Q N398Q		CC ΔV1V2*V3 N357Q N398Q		wt		envelope protein
2G12	F91	2G12	F91	2G12	F91	2G12	F91	F91	F91	antibody
1	2	3	4	5	6	7	8	9	10	lane

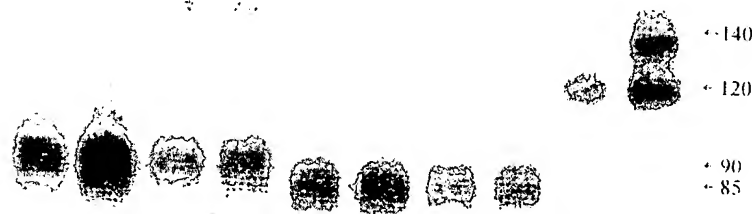
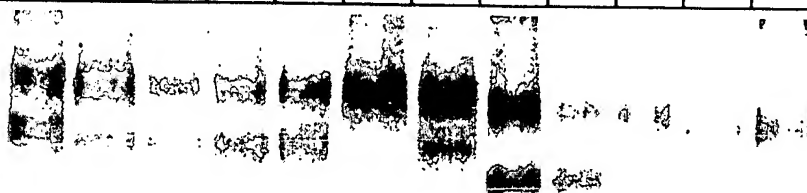


FIGURE 11B

B

wt	ΔV1		ΔV2		ΔV3		ΔV1V2'		ΔV1V2*		ΔV1V2*V3		protein
CC		CC		CC		CC		CC		CC		CC	cysteines
1	2	3	4	5	6	7	8	9	10	11	12	13	lane



14/20

FIGURE 12A

A

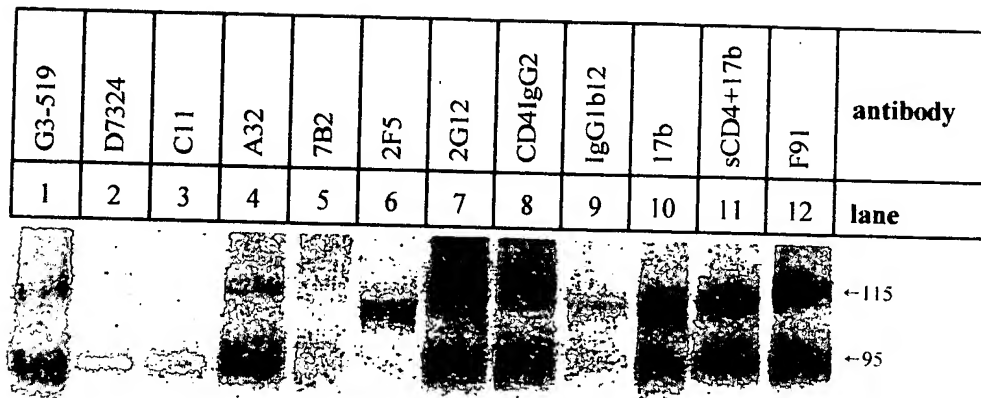
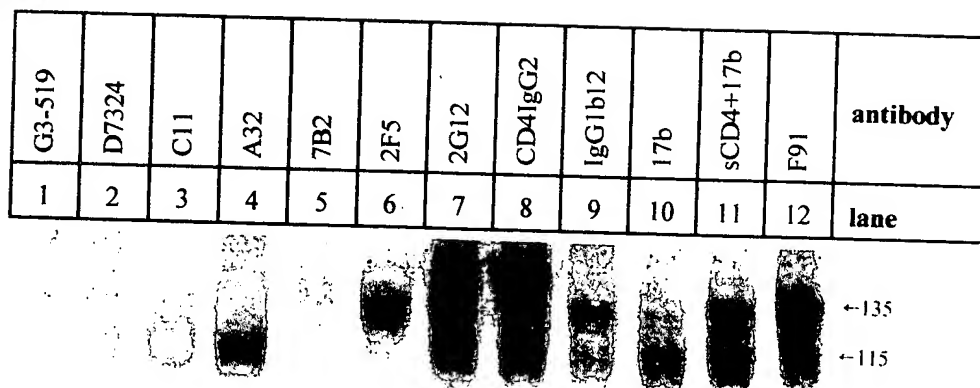


FIGURE 12B

B





15/20

FIGURE 13A

HIV-1_{JR-FL} SOS gp140

(a)

```
1      GTAGAAAAGTTGTGGGTCACAGTCTATTATGGGGTACCTGTGTGGAAAGA
51     AGCAACCACCACTCTATTTTGTGCATCAGATGCTAAAGCATATGATACAG
101    AGGTACATAATGTTTGGGCCACACATGCCTGTGTACCCACAGACCCCAAC
151    CCACAAGAAGTAGTATTGGAAAATGTAACAGAACATTTTAACATGTGGAA
201    AAATAACATGGTAGAACAGATGCAGGAGGATATAATCAGTTTATGGGATC
251    AAAGCCTAAAGCCATGTGTAAATTAACCCCACTCTGTGTTACTTTAAAT
301    TGCAAGGATGTGAATGCTACTAATACCACTAATGATAGCGAGGGAACGAT
351    GGAGAGAGGAGAAATAAAAACTGCTCTTTCAATATCACCACAAGCATAA
401    GAGATGAGGTGCAGAAAGAATATGCTCTTTTTTATAAACTTGATGTAGTA
451    CCAATAGATAATAATAATACCAGCTATAGGTTGATAAGTTGTGACACCTC
501    AGTCATTACACAGGCCTGTCCAAAGATATCCTTTGAGCCAATTCCCATAC
551    ATTATTGTGCCCCGGCTGGTTTTGCGATTCTAAAGTGTAATGATAAGACG
601    TTCAATGGAAAAGGACCATGTAAAAATGTCAGCACAGTACAATGTACACA
651    TGGAATTAGGCCAGTAGTATCAACTCAACTGCTGCTAAATGGCAGTCTAG
701    CAGAAGAAGAGGTAGTAATTAGATCTGACAATTTACGAACAATGCTAAA
751    ACCATAATAGTACAGCTGAAAGAATCTGTAGAAATTAATTGTACAAGACC
801    CAACAACAATACAAGAAAAAGTATACATATAGGACCAGGGAGAGCATTTT
851    ATACTACAGGAGAAATAATAGGAGATATAAGACAAGCACATTGTAACATT
901    AGTAGAGCAAAATGGAATGACACTTTAAACAGATAGTTATAAAATTAAG
951    AGAACAATTTGAGAATAAAACAATAGTCTTTAATCACTCCTCAGGAGGGG
1001   ACCCAGAAATTGTAATGCACAGTTTTAATTGTGAAGGAGAATTTTCTAC
1051   TGTAATTCAACACAACCTGTTTAAATAGTACTTGGAATAATAACTGAAGG
1101   GTCAAATAACACTGAAGGAAATACTATCACACTCCCATGCAGAATAAAAC
1151   AAATTATAAACATGTGGCAGGAAGTAGGAAAAGCAATGTATGCCCTCCC
1201   ATCAGAGGACAAATTAGATGTTTCATCAAATATTACAGGGCTGCTATTAAC
1251   AAGAGATGGTGGTATTAATGAGAATGGGACCGAGATCTTCAGACCTGGAG
1301   GAGGAGATATGAGGGACAATTGGAGAAGTGAATTCTATAAATATAAGTA
1351   GTAAAAATTGAACCATTAGGAGTAGCACCCACCAAGTGCAAGAGAAGAGT
1401   GGTGCAAAGAGAAAAAAGAGCAGTGGGAATAGGAGCTGTGTTCTTGGGT
1451   TCTTGGGAGCAGCAGGAAGCACTATGGGCGCAGCGTCAATGACACTGACG
1501   GTACAGGCCAGACTATTATTGTCTGGTATAGTGCAACAGCAGAACAATTT
1551   GCTGAGGGCTATTGAGGCGCAACAGCGTATGTTGCAACTCACAGTCTGGG
1601   GCATCAAGCAGCTCCAGGCAAGAGTCCTGGCTGTGGAAAGATACCTAGGG
1651   GATCAACAGCTCCTGGGGATTTGGGGTTGCTCTGGAAACTCATTTGCTG
1701   CACTGCTGTGCCTTGGAATGCTAGTTGGAGTAATAAATCTCTAGATAGGA
1751   TTTGGAATAACATGACCTGGATGGAGTGGGAAAGAGAAATTGACAATTAC
1801   ACAAGCGAAATATACACACTAATTGAAGAATCGCAGAACCAACAAGAAA
1851   GAATGAACAAGAATTATTGGAATTAGATAAATGGGCAAGTTTGTGGAATT
1901   GGTTTGACATAACAACTGGCTGTGGTAT
```

16/20

FIGURE 13B

30	VEKLWVTVYY	GVPVWKEATT	TLFCASDAKA	YDTEVHNVWA	THACVPTDPN
80	PQEVVLENT	EHFNMWKNNM	VEQMVEDIIS	LWDQSLKPCV	KLTPLCVTLN
130	CKDVNATNTT	NDSEGTMERG	EIKNCSFNIT	TSIRDEVQKE	YALFYKLDVV
180	PIDNNNTSYR	LISCDTSVIT	QACPKISFEP	IPIHYCAPAG	FAILKCNDKT
230	FNGKGPCKNV	STVQCTHGIR	PVVSTQLLLN	GSLAEEEVVI	RSDNFTNNAK
280	TIIVQLKESV	EINCTRPNNN	TRKSIHIGPG	RAFYTTEGII	GDIRQAHCNI
330	SRAKWNDTLK	QIVIKLREQF	ENKTIVFNHS	SGGDPEIVMH	SFNCEGEFFY
380	CNSTQLFNST	WNNNTEGSNN	TEGNTITLPC	RIKQIINMWQ	EVGKAMYAPP
430	IRGQIRCSSN	ITGLLLTRDG	GINENGTEIF	RPGGGDMRDN	WRSEFYKYKV
480	VKIEPLGVAP	TKCKRRVVQR	EKRAVGIGAV	FLGFLGAAGS	TMGAASMTLT
530	VQARLLLSGI	VQQQNLLRA	IEAQQRMLQL	TVWGIKQLQA	RVLAVERYLG
580	DQQLLGIWGC	SGKLICCTAV	PWNASWSNKS	LDRIWNNMTW	MEWEREIDNY
630	TSEIYTLIEE	SONQOEKNEQ	ELLELDKWS	LWNWFEDITNW	LWY



17/20

FIGURE 14A

HIV-1_{JR-FL} ΔV1V2* SOS gp140

(a)

```
1      GTAGAAAAGTTGTGGGTCACAGTCTATTATGGGGTACCTGTGTGGAAAGA
51     AGCAACCACCACTCTATTTTGTGCATCAGATGCTAAAGCATATGATACAG
101    AGGTACATAATGTTTGGGCCACACATGCCTGTGTACCCACAGACCCCAAC
151    CCACAAGAAGTAGTATTGGAATGTAACAGAACATTTTAACATGTGGAA
201    AAATAACATGGTAGAACAGATGCAGGAGGATATAATCAGTTTATGGGATC
251    AAAGCCTAAAGCCATGTGTAAAATTAACCCCACTCTGTGGTGCAGGATGT
301    GACACCTCAGTCATTACACAGGCCTGTCCAAAGATATCCTTTGAGCCAAT
351    TCCCATAACATTATTGTGCCCCGGCTGGTTTTGCGATTCTAAAGTGTAATG
401    ATAAGACGTTCAATGGAAGAGGACCATGTAAAAATGTCAGCACAGTACAA
451    TGTACACATGGAATTAGGCCAGTAGTATCAACTCAACTGCTGCTAAATGG
501    CAGTCTAGCAGAAGAAGAGGTAGTAATTAGATCTGACAATTTACGAACA
551    ATGCTAAAACCATAATAGTACAGCTGAAAGAATCTGTAGAAATTAATTGT
601    ACAAGACCCAACAACAATACAAGAAAAAGTATACATATAGGACCAGGGAG
651    AGCATTTTATACTACAGGAGAAATAATAGGAGATATAAGACAAGCACATT
701    GTAACATTAGTAGAGCAAAATGGAATGACACTTTAAACAGATAGTTATA
751    AAATTAAGAGAACAATTTGAGAATAAAACAATAGTCTTTAATCACTCCTC
801    AGGAGGGGACCCAGAAATTGTAATGCACAGTTTTAATTGTGGAGGAGAAT
851    TTTTCTACTGTAATTCAACACAACGTGTTAATAGTACTTGGGAATAATAAT
901    ACTGAAGGGTCAAATAACACTGAAGGAAATACTATCACACTCCCATGCAG
951    AATAAAACAATTTATAAACATGTGGCAGGAAGTAGGAAAAGCAATGTATG
1001   CCCCTCCCATCAGAGGACAAATTAGATGTTTCATCAAATATTACAGGGCTG
1051   CTATTAACAAGAGATGGTGGTATTAATGAGAATGGGACCGAGATCTTCAG
1101   ACCTGGAGGAGGAGATATGAGGGACAATTGGAGAAGTGAATTATATAAAT
1151   ATAAAGTAGTAAAAATTGAACCATTAGGAGTAGCACCCACCAAGTGCAAG
1201   AGAAGAGTGGTGCAAAGAGAAAAAGAGCAGTGGGAATAGGAGCTGTGTT
1251   CCTTGGGTTCTTGGGAGCAGCAGGAAGCACTATGGGCGCAGCGTCAATGA
1301   CACTGACGGTACAGGCCAGACTATTATTGTCTGGTATAGTGCAACAGCAG
1351   AACAATTTGCTGAGGGCTATTGAGGCGCAACAGCGTATGTTGCAACTCAC
1401   AGTCTGGGGCATCAAGCAGCTCCAGGCAAGAGTCCTGGCTGTGGAAAGAT
1451   ACCTAGGGGATCAACAGCTCCTGGGGATTTGGGGTTGCTCTGGAAACTC
1501   ATTTGCTGCACTGCTGTGCCTTGGAATGCTAGTTGGAGTAATAAATCTCT
1551   GGATAGGATTTGGAATAACATGACCTGGATGGAGTGGGAAAGAGAAATTG
1601   ACAATTACACAAGCGAAATATACACCCTAATTGAAGAATCGCAGAACCAA
1651   CAAGAAAAGAATGAACAAGAATTATTGGAATTAGATAAATGGGCAAGTTT
1701   GTGGAATTGGTTTGACATAACAACTGGCTGTGGTAT
```



18/20

FIGURE 14B

(b)

30	VEKLWVTVYY	GVPVWKEATT	TLFCASDAKA	YDTEVHNVWA	THACVPTDPN
80	PQEVVLENT	EHFNMWKNNM	VEQMQEDIIS	LWDQSLKPCV	KLTPLCGAGC
130	DTSVITQACP	KISFEPIPIH	YCAPAGFAIL	KCNDKTFNGK	GPCKNVSTVQ
180	CTHGIRPVVS	TQLLNGSLA	EEEVVIRSDN	FTNNAKTIIV	QLKESVEINC
230	TRPNNNTRKS	IHIGPGRIFY	TTGEIIGDIR	QAHCNISRAK	WNDTLKQIVI
280	KLREQFENKT	IVFNHSSGGD	PEIVMHSFNC	GGEFFYCNST	QLFNSTWNNN
330	TEGSNNTEGN	TITLPCRIKQ	IINMWQEVGK	AMYAPPIRGQ	IRCSSNITGL
380	LLTRDGGINE	NGTEIFRPGG	GDMRDNRWSE	LYKYKVVKIE	PLGVAPTKCK
430	RRVVQREKRA	VGIGAVFLGF	LGAAGSTMGA	ASMTLTVQAR	LLLSGIVQQQ
480	NNLLRAIEAQ	QRMLQLTVWG	IKQLQARVLA	VERYLGDQQL	LGIWGCSGKL
530	ICCTAVPWNA	SWSNKSLDRI	WNNMTWMEWE	REIDNYTSEI	YTLIEESQNO
580	QEKNEQELLE	LDKWASLWNW	FDITNWLWY		



19/20

FIGURE 15A

HIV-1_{JR-FL} ΔV3 SOS gp140

(a)

```
1   GTAGAAAAGTTGTGGGTCACAGTCTATTATGGGGTACCTGTGTGGAAAGA
51  AGCAACCACCACTCTATTTTGTGCATCAGATGCTAAAGCATATGATACAG
101 AGGTACATAATGTTTGGGCCACACATGCCTGTGTACCCACAGACCCCAAC
151 CCACAAGAAGTAGTATTGGAAAATGTAACAGAACATTTTAACATGTGGAA
201 AAATAACATGGTAGAACAGATGCAGGAGGATATAATCAGTTTATGGGATC
251 AAAGCCTAAAGCCATGTGTAAATTAACCCCACTCTGTGTTACTTTAAAT
301 TGCAAGGATGTGAATGCTACTAATAACCACTAATGATAGCGAGGGAACGAT
351 GGAGAGAGGAGAAATAAAAACTGCTCTTTCAATATCACCACAAGCATAA
401 GAGATGAGGTGCAGAAAGAATATGCTCTTTTTTATAAACTTGATGTAGTA
451 CCNATAGATAATAATAATACCAGCTATAGGTTGATAAGTTGTGACACCTC
501 AGTCATTACACAGGCCTGTCCAAAGATATCCTTTGAGCCAATTCCCATAC
551 ATTATTGTGCCCCGGCTGGTTTTTGCATTCTAAAGTGTAATGATAAGACG
601 TTCAATGGAAAAGNCCATGTAAAAATGTCAGCACAGTNCAATGTACACA
651 TGGAATTAGGCCAGTAGTATCAACTCAACTGCTGCTAAATGGCAGTCTAG
701 CAGAAGAAGAGGTAGTAATTAGATCTGACAATTTACGAACAATGCTAAA
751 ACCATAATAGTACAGCTGAAAGAATCTGTAGAAATTAATTGTACAAGACC
801 CAACAACAATGGAGCCGGCGATATAAGACAAGCACATTGTAACATTAGTA
851 GAGCAAAATGGAATGACACTTTAAAACAGATAGTTATAAAATTAAGAGAA
901 CAATTTGAGAATAAAACAATAGTCTTTAATCACTCCTCAGGAGGGGACCC
951 AGAAATTGTAATGCACAGTTTTAATTGTGGAGGAGAATTTTTTCTACTGTA
1001 ATTCAACACAACCTGTTTAATAGTACTTGGAATAATAATACTGAAGGGTCA
1051 AATAACACTGAAGGAAATACTATCACACTCCCATGCAGAATAAAACAAAT
1101 TATAAACATGTGGCAGGAAGTAGGAAAAGCAATGTATGCCCTCCCATCA
1151 GAGGACAAATTAGATGTTTATCAATATTACAGGGCTGCTATTAACAAGA
1201 GATGGTGGTATTAATGAGAATGGGACCGAGATCTTCAGACCTGGAGGAGG
1251 AGATATGAGGGACAATTGGAGAAAGTGAATTATATAAATATAAAGTAGTAA
1301 AAATTGAACCATTAGGAGTAGCACCCACCAAGTGCAAGAGAAGAGTGGTG
1351 CAAAGAGAAAAAAGAGCAGTGGGAATAGGAGCTGTGTTCTTGGGTTCTT
1401 GGGAGCAGCAGGAAGCACTATGGGCGCAGCGTCAATGACACTGACGGTAC
1451 AGGCCAGACTATTATTGTCTGGTATAGTGCAACAGCAGAACAAATTTGCTG
1501 AGGGCTATTGAGGCGCAACAGCGTATGTTGCAACTCACAGTCTGGGGCAT
1551 CAAGCAGCTCCAGGCAAGAGTCTGGCTGTGGAAAGATACCTAGGGGATC
1601 AACAGCTCCTGGGGATTGTTGGGTTGCTCTGGAAAACCTCATTTGCTGCACT
1651 GCTGTGCCCTTGAATGCTAGTTGGAGTAATAAATCTCTGGATAGGATTTG
1701 GAATAACATGACCTGGATGGAGTGGGAAAGAGAAATTGACAATTACACAA
1751 GCGAAATATACACCCTAATTGAAGAATCGCAGAACCAACAAGAAAAGAAT
1801 GAACAAGAATTATTGGAATTAGATAAATGGGCAAGTTTGTGGAATTGGTT
1851 TGACATAACAAAATGGCTGTGGTAT
```



20/20

FIGURE 15B

30	VEKLWVTVYY	GVPVWKEATT	TLFCASDAKA	YDTEVHNVWA	THACVPTDPN
80	PQEVVLENT	EHFNMWKNNM	VEQMQEDIIS	LWDQSLKPCV	KLTPLCVTLN
130	CKDVNATNTT	NDSEGTMERG	EIKNCSFNIT	TSIRDEVQKE	YALFYKLDVV
180	XIDNNNTSYR	LISCDTSVIT	QACPKISFEP	IPIHYCAPAG	FAILKCNDKT
230	FNGKXPCKNV	STXQCTHGIR	PVVSTQLLLN	GSLAEEEVVI	RSDNFTNNAK
280	TIIVQLKESV	EINCTRPNNN	GAGDIRQAHC	NISRAKWNDT	LKQIVIKLRE
330	QFENKTIVFN	HSSGGDPEIV	MHSFNCGGEF	FYCNSTQLFN	STWNNNTEGS
380	NNTEGNTITL	PCRIKQIINM	WQEVGKAMYA	PPIRGQIRCS	SNITGLLLTR
430	DGGINENGTE	IFRPGGGDMR	DNWRSELYKY	KVVKIEPLGV	APTKCKRRVV
480	QREKRAVGIG	AVFLGFLGAA	GSTMGAASMT	LTVQARLLLS	GIVQQQNNLL
530	RAIEAQQRML	QLTVWGIKQL	QARVLAVERY	LGDQQLLGIW	GCSGKLICCT
580	AVPWNASWSN	KSLDRIWNNM	TWMEWEREID	NYTSEIYTTLI	EESQNQQEKN
630	EQELLELDKW	ASLWNWFDIT	KWLWY		

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☒ FADED TEXT OR DRAWING
- ☒ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☒ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☐ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.